Clinical Experience in Abdominal Surgery

AT THE

Massachusetts General Hospital

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CLINICAL EXPERIENCE IN ABDOMINAL SURGERY AT THE MASSACHUSETTS GENERAL HOSPITAL.

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THE following cases have been collected from the record-books of the hospital, and represent the bulk of the work performed during eight months of service.

Although it may not cover all the operations done during that time in my service, it represents fairly well the variety of the problems which present themselves to the hospital surgeon. An attempt has been made to follow up the subsequent histories of the cases, a task of no small difficulty. For the sake of avoiding needless repetition a great many of the cases are not reported, but a careful selection has been made from each class to show the different types of cases. It ought to be stated, however, in this connection that no case has been withheld on account of its unfavorable termination. I am much indebted for notes of cases and reports of the results to Drs. Tenny and J. S. Stone.

I regret that the facilities for bacteriological research at the hospital are not such as to enable me to make this side of clinical study a feature of the article. I am happy to be able to state, however, that sufficient funds are now in possession of the trustees to build and equip a pathological and bacteriological laboratory worthy of the hospital.

The preparation of cases for abdominal surgery has not changed materially within the last two years. The methods differ slightly in the different services.

The diet of a patient, if sufficient time be given for

preparation, should be of such a nature as to leave as slight an amount of residuum in the lower bowel as possible. Liquid food without milk — such as beef-juice, broths and also eggs — seems best suited for this purpose. No active cathartics should be allowed the night before the operation. If it is thought best to clear out any fecal residuum that may be of long standing a half an ounce of castor oil may be given forty-eight or thirty-six hours before the operation. An enema is all that should be attempted the night before or the morning of the operation.

The preparation of the abdomen takes place the afternoon preceding the operating day. The skin is shaved, and then scrubbed with soap, hot-water and ether. A soap poultice (absorbent cotton covered with gauze soaked in soft soap) is then applied for two hours. The part is then scrubbed with ether, corrosive sublimate (1–3,000), and a corrosive poultice of the same strength is applied and allowed to remain on over night, to be replaced by a fresh poultice in the morning.

ACUTE APPENDICITIS.

There were in all 15 cases of this affection in which an operation was performed, with two deaths. There were a few cases admitted to the ward which recovered without operation. Five cases are selected as instructive examples of the operative treatment. In the case of J. S., the prompt interference enables one to see the condition of the appendix before the stage of suppuration and the rapid recovery which usually follows in such cases. J. M. shows well the efforts of nature to shut off the pus from the general peritoneal cavity, and the success attending efforts to wall off that cavity with sterilized gauze during the evacuation of the abscess. The next two cases, N. H. and

M. G., show conditions under which it is difficult to find the appendix. In the case of N. H. the danger of leaving the appendix is well shown. Although an appendix, if left behind, is a constant menace to the patient, the danger of breaking down the protecting barrier is one that should always be carefully considered in difficult cases. The case of J. C. illustrates the danger of delay in operation. When he was admitted to the ward there were two cases convalescing from attacks in which no operation had been performed, and in one of these the symptoms resembled closely those of J. C.

In none of these cases is there a report of hernia following the operation.

In suppurating cases the stump of the appendix was tied, usually with stout catgut ligature, in order to avoid the discomfort of a slowly healing ligature sinus.

In the recurrent cases, and in those acute cases which have not come to suppuration, the ligature was tied with silk, and the lumen was disinfected with strong carbolic acid. The edges of the stump were then stitched together, and the stump itself finally buried in a fold of peritoneum.

A fold of iodoform gauze was passed down to the end of the stump in suppurating cases, and was surrounded by a wall of sterilized gauze. This was usually allowed to remain in from three to six days. In acute cases a free incision and a liberal packing of the wound has appeared to me preferable to a partial closure by stitches.

Operation, Recovery.— J. S., nineteen years of age, entered December 1, 1894, with a history of high epigastric pains, with colicky pain in whole abdomen of twenty-four hours' duration. Went to bed. Knees were drawn up, and he could not lie on his right side. Vomited (greenish) several times during the night,

but no chills. Had morphia during night. General tenderness. Passed no gas. Bowels moved two days ago. Never had a similar attack before.

At entrance lies on right side, with knees drawn up. Pain seems to be paroxysmal. No collapse. Temperature normal, pulse strong and full, 96. General abdominal tenderness and tympany. Six ounces of urine drawn by catheter. No cake. Rectal examination negative. Tenderness more marked in left iliac fossa. A high enema of suds and turpentine brought down good movement and some gas. He was prepared for immediate operation. The regular incision, about three inches long, was made over McBurney's point. There was no edema of the abdominal wall. The omentum was adherent. A very little serum was found in the abdominal cavity. There was no intestinal injection. The appendix was found behind the cecum and doubled upon itself; the loops were adherent, and the whole organ was firmly attached to the cecum by adhesions, which had to be cut in order to apply a ligature. The appendix was found to be normal otherwise, and contained no concretion. It was removed, the stump cauterized and hidden in a pouch of peritoneum and bowel wall, and retained there by intestinal sutures. Continuous silk sutures to peritoneum and silkworm-gut to external wound. One-sixth of a grain of morphia subcutaneously was given. At 11.30 P. M. much pain; lying on right side and distention marked. Was given morphia, cracked ice and milk and lime-water. Had two good movements, and passed considerable gas with relief of all the symptoms. Later had some diarrhea, but otherwise made a good recovery. The wound healed by first intention; and December 15th, fourteen days after the operation, he was discharged well.

July 3, 1895. Reported. Has been perfectly

well. No further attacks of pain. Has no tenderness. After walking much has soreness in scar. No evidence of hernia. Scar perfectly firm and solid.

Operation, Recovery.— J. M., twenty-three years of age, entered October 2, 1894. Four days ago she had a sudden, sharp and constant pain in upper abdomen. Constant vomiting of greenish material. No chill, but chilly sensations. Small dejection next morning. Is habitually constipated. During the next three days small movements obtained by enemata, but without relief to the pain. On the second day the pain went to the lower abdomen, and by the third day was localized in the right iliac fossa, where there was marked tenderness. No vomiting since first night. Now, pain and tenderness in right iliac fossa. The cheeks are flushed and the abdomen moderately distended. Skin in right iliac region mottled with red. Temperature on entrance 102.8°, pulse 120, respiration 30. In the right iliac fossa there is a distinct mass, dull on percussion and very tender. This mass extends well around into flank. Vaginal and rectal examinations are negative. Prepared for immediate operation.

An incision, four inches long, was made through McBurney's point. The deep layer of the superficial fascia was found to be edematous. On opening the thickened peritoneum, a rounded, grayish mass presented, composed of inflammatory tissue. The general cavity was carefully walled off with sterilized gauze and a small incision was made into the fluctuating tumor. Foul gas and pus escaped and was quickly sponged away with small sterilized gauze sponges. The cavity was then freely opened and flushed with sterile water. In the wall was found the gangrenous appendix, which was removed, the base being tied with catgut ligature. The infected tissues were wiped

with peroxide of hydrogen and with a weak solution of corrosive sublimate, they were then dried and packed with iodoform gauze. No sutures. Dry dressing and swathe. All ligatures of catgut.

During the night the rectal tube was used, with great relief to abdominal pain. The second day catamenia set in, and continued four days. The bowels were moved by enema on the third day; all gauze out next day. On seventeenth day slight pain (incipient phlebitis) in right thigh relieved by cotton wrapping.

Cultures taken from the interior of the appendix and grown upon gelatine showed a pure culture of the bacillus coli communis.

The wound granulated well, and on November 3d, one month after the operation, she was discharged well with a linear scar.

July 5, 1895. Does not spare herself at all except in lifting. No hernia. "In perfect health."

Operation, Recovery. — N. H., entered December 12, 1894, age nineteen, single. Two weeks ago, after an evening meal of cold corned beef and sweet cider (never indulged in before), she awoke with pain in belly — general. Vomited, but had no chills. Went to bed. (Bowels moved before she vomited.) Has grown steadily worse.

The abdominal muscles are rigid. A dull area, with corresponding cake, extends from median line near navel to right iliac fossa. Very tender here also. By rectum local tenderness, but no bulging. Rest of abdomen tympanitic. Temperature 101.8°, pulse 108, respiration 28. Facies not characteristic, but very pale. Immediate operation.

Incision below and outside of McBurney's point. Muscles edematous. Bowel walled back with gauze. Everything about cecum and appendix a mass of adhesions. Working down and inwards about four

ounces of foul green pus were freed, and wiped away with gauze and corrosive. Appendix was not found. An iodoform wick was inserted and the wound dressed.

The subsequent history was that of a granulating wound. Myrrh wash was used as a dressing, and on January 17th, thirty-six days after entrance, she was discharged well, wearing an abdominal supporter.

July 10, 1895. In April had an attack of pain across abdomen; great tenderness above the scar. The pain was so severe that she could not move in bed. There was very frequent black vomiting for two days. The tenderness lasted for a month; still, on deep inspiration, slight pain in this place. Health at present fairly good.

Operation, Recovery.— M. G., forty years old, entered October 28, 1894. Six weeks ago, while pregnant, had intermittent pains in right iliac fossa, without vomiting or chills. Bowels regular. Child born three weeks ago. Nineteen days ago, two days after birth of child, had chills, abdominal pain (worse on right). No vomiting or other symptoms. Bowels regular. Next day pain localized in right iliac fossa, and since then has been sharp and intermittent. Nothing else now except pain and tenderness. On entrance her temperature was 101.5°, pulse 100, respiration 36. There was no abdominal distention, but dulness in the right iliac fossa, where a hard, movable mass could be felt. Tender on pressure. Vaginal examination negative. By rectum retroflexed uterus felt. She was prepared for ope ation, and three large dejections passed without relief to the symptoms. On the next morning, all symptoms having increased, the operation was performed.

On opening the abdominal cavity there were no signs of peritonitis. Behind and outside of cecum — retroperitoneally — was a large fluctuating mass,

which, after gauze protective had been placed was cautiously incised through peritoneum, and pus allowed to flow out in small quantities at a time. A large amount of very foul pus was thus evacuated and the cavity flushed out with boiled water. No search was made for appendix, as it was incorporated in the abscess wall. The wound was packed with iodoform gauze and a dry dressing applied. After the operation a stimulant enema with salt solution, was given, as the operation had been attended with considerable hemorrhage. She made a good recovery from the ether and did well. November 1st, the wound was dressed, and found to be discharging a foul, chocolate-colored fluid. Syringed with styrone and repacked. November 3d, bowels moved freely. The further history is that of a granulating wound. A rather obstinate constipation was relieved by cathartics; and on the twenty-third of December, fifty-five days after the operation, she was discharged well, with a very small granulating wound, which had entirely healed by January 8, 1895.

July 2, 1895. Very well since discharge. Back a little weak. Slight bulging on right side, she thinks.

Perforation, Operation, Death. — J. C., aged thirty-nine, entered November 18, 1894. One year ago he had symptoms suggesting the passage of a calculus through the left ureter, but never passed any gravel.

Four days ago began to have dull pain radiating from median line of abdomen to right side. He worked the next day (Friday), but Saturday was obliged to go to bed, where he remained until brought here. Although he was somewhat nauseated Friday night and Saturday morning, there has been no vomiting and no chills. His bowels moved on Friday morning. He had considerable sharp pain incident to the jolting received in being brought to the hospital.

His entrance temperature was 101° F., pulse 100, respiration 32. He did not appear very ill, and was considered a good case to watch. On the second day of his entrance to the hospital (the fifth of his illness) his temperature dropped and he took liquid nourishment well. The next day the temperature reached normal and he had no pain, although the abdomen was still somewhat rigid and there was slight tenderness in the right iliac fossa.

At 2.30 A. M., November 21st, he was reported for sharp pain relieved by the application of hot-water bottles and the internal administration of ginger. At 5 A. M. his pulse and temperature were rising, and he was in constant pain, mostly in the right side, with considerable perspiration. He became somewhat more comfortable later, but at 11.30 A. M. the operation was performed.

Free, thin, greenish pus was found in the abdominal cavity, and the intestines were covered with flakes of fibrin. The appendix was found perforated near the base, and a concretion was found lying free near it. The appendix was ligatured with silk and removed, the stump being hidden in flaps of peritoneum and buried in a fold of intestinal wall sutured over it. The abdomen was carefully wiped with sterilized gauze moistened with a weak solution of corrosive sublimate, a drainage-tube surrounded by iodoform gauze was pushed deep into the pelvis.

The patient failed steadily after the operation, although at 11 P. M. he became conscious and rational. At 2 A. M., November 22d, he became delirious, and at 6.53 A. M. he died.

RECURRENT APPENDICITIS.

There were three cases operated upon between the attacks. One of these is selected as an example of

what may be done in the way of temporizing when it is desired not to operate during the attack. In one of the other cases the patient reports six months after the operation, "similar continual pain, though less severe than before the operation. No hernia." In a third case the appendix was found to be normal, and the discovery of a blue line on the gums shortly after the operation suggested lead poisoning as a possible source of the abdominal pain. The desirability of making a careful differential diagnosis before sending such a case to the hospital need hardly be emphasized. The operation "between the attacks" has in my private practice been followed by the most satisfactory results.

Removal of Appendix, Recovery. — The patient, a waiter, twenty-three years old, entered the hospital October 18, 1894. Nearly two years ago he had a bad "colic," accompanied by constipation and vomiting. He was confined to bed for one day, and the next day resumed work. A year later a similar attack, but less severe, kept him in bed for two or three days. Since then he has had several attacks, with constantly diminishing intervals. Constipation with each attack, vomiting with first only. Last November was in hospital three days with attack, but refused operation. Chills only in that attack — last November. Each attack left a right iliac tenderness.

Two days ago, during night, had general abdominal pains, slight at first but gradually increasing until morphine was required. Pain persisted, and last night had vomiting and chills. One small dejection. Came here in ambulance because too weak to walk. Good development and nutrition; tongue coated; dull and stupid. No abdominal distention, no dulness, no cake. General tenderness. No spleen. Rectal examination negative. He was poulticed with sulpho-

naphthol, and in the next ten days became much better. Nearly all symptoms disappeared, and October 29th the operation was performed.

The abdomen was opened at McBurney's point, and an appendix showing very slight signs of inflammation was exposed. The appendix, which was long, small in diameter, and with very few adhesions, was removed. A silk ligature was placed about the stump, which was touched with the cautery. The cecum was sutured over stump from each side. The peritoneum was closed with continuous silk, and the external wound with silkworm-gut.

On November 6th all sutures were removed. The wound healed by first intention. Uneventful recovery. Discharged well November 17th, nineteen days after operation.

Patient reported in June, 1895, that there have been no symptoms of the former trouble since the operation.

Gall-Stones, Cholecystotomy, Recovery. — A woman, married, thirty-four years of age, entered November 5, 1893, with a history of a sudden attack of epigastric pain combined with vomiting. These symptoms came on thirty-six hours before, and were preceded by twenty-four hours by a chill. Obstinate constipation. Convulsions night before entrance. Has had similar attacks during last seven years. She was very hysterical. Poorly nourished. Induration and tympany in right hypochondrium. There was no jaundice. During the next two days the pain and tenderness increased, the appearance of a tumor became more marked and on November 8th she was prepared for operation.

A five-inch incision was made over the gall-bladder region along the line of the linea semilunaris. An enlarged edematous liver presented, with gall-bladder adherent to the intestines. After aspiration the bladder was opened, and 150 stones removed from the cystic

duct. The interior of the gall-bladder was curetted, and the bladder stitched to the abdominal wound with a rubber drainage-tube inserted. A sterilized dressing and swathe were applied. The patient made a good recovery from ether. On November 14th the tube and gauze were replaced, and the bile conducted into a bottle. On November 22d the tube was removed. On December 9th, having done perfectly well, she left the hospital, refusing operation to close a small slowly-healing sinus.

Gall-Stones, Cholecystotomy and Choledochotomy, Death. — This patient entered the medical ward November 21, 1893. She was a working girl, single, twenty-two years of age, a native of Newfoundland. She complained of indigestion for several years and had been treated in the Out-Patient Department of the Massachusetts General Hospital. About a month ago her distress after eating became real pain, and in the past three weeks she has suffered from vomiting and itching of the skin. She has been jaundiced, with dark urine and clay-like stools, and is greatly emaciated. Occasional chills. Spirits not low. Upon examination the chest was negative. The liver dulness extended from the fifth rib to one inch below the costal border; the edge was not felt. On January 2, 1894, on account of progressively increasing severity of symptoms, she was transferred to the surgical ward for operation. After entering the surgical side she improved greatly; but as the attacks from which she suffers incapacitate her from regular work, she desired an operation.

A five-inch incision parallel to the right costal border exposed a distended gall-bladder, which was opened by a transverse incision through the fundus. The intestines were walled off with gauze. About an ounce of normal bile and five small stones were removed from the cystic duct, which was tortuous and thickened. It was neces-

sary to incise the cystic duct to remove one large impacted stone. This wound was closed with silk Lembert sutures. The gall-bladder was sewed to the abdominal wound with silk sutures, which passed only through the peritoneum. The external wound was partially closed with a rubber tube in the bladder and a gauze wick draining the wound of the cystic duct.

The patient made a good recovery from the anesthetic.

The wound drained well, and on the fourth day the gauze drain was withdrawn and the rubber was replaced by gauze. She vomited constantly, however, retaining no nourishment either by mouth or rectum; there was not at any time tympanites or other symptoms of peritonitis. Finally, an excessive diarrhea set in and on February 8th, ten days after the operation, she died.

At the autopsy the diagnosis was made of septicemia, probably following necrosis of liver.

This case is of more than usual interest, as but comparatively few cases of suture of the gall-ducts have been attempted.

EXPLORATORY LAPAROTOMY.

Exploratory laparotomy was performed in six cases. In one case, not reported at length, the operation was performed for the purpose of determining the possibility of hysterectomy for carcinoma uteri. The explorations clearly showed, what could not be determined by a vaginal examination, namely, the futility of such an operation, the disease involving both broad ligaments and extending along the linea pectineæ. The case of E. F. C. shows the obscurity attending some types of abdominal disease. It seemed possible that the abdominal symptoms were but an accompaniment of some acute febrile disturbance.

Fibrous Polyp of Cervix Uteri, Exploratory Lap-

arotomy, Recovery. — M. W., entered November 10, 1894. Fifty-six years old, of rather dwarfish stature, married. Two children and two miscarriages. Last August, acute retention relieved by the catheter. Twice since relieved in same manner. Six years ago had "falling of womb"; returned by hot douches. Climacteric nine years ago. Has foul leucorrhea and considerable backache. By the vagina a rounded mass, nearly filling the small pelvis, could be felt, but no cervix could be made out. Bi-manually a small mass was felt above the pubes. She was etherized November 26th, and on account of the unsatisfactory examination it was thought best to open the abdomen to be sure that the uterus was not inverted. The organ was found in normal position and of normal size, but firmly held by the mass in the vagina. The diagnosis of polypus being thus confirmed (and it could be felt below Douglas's fossa), the abdominal wound was protected, and in the lithotomy position the tumor was delivered through the vulva, the pedicle rupturing during manipulation. The wound on the anterior cervical lip was sutured and the vagina packed with iodoform gauze. The polypus was the size of a cocoanut. The abdominal wound was then closed with interrupted silkworm-gut, and a dry dressing applied.

The patient made a most excellent recovery, and three weeks later, on December 20th, was sent to the Convalescent Home, much relieved. In the latter part of February, owing to flowing, the uterine cavity was curetted.

Reports, July, 1895, that she feels much better than when she went to the hospital, though sometimes pains occur in the back. Since curetting has flowed three or four days on one occasion.

Cancer of Peritoneum, Laparotomy, Recovery. —

S. P., age fifty-seven, a widow, entered January 7, 1895. Menopause at forty-five, and since then has grown stout. She has had rheumatism for several years. Last summer, after hard work, she experienced a sudden sharp pain in the left side, and shortly after the belly swelled. The swelling continued for three or four weeks with occasional pain, finally relieved by free catharsis. She has had several attacks of this nature, and the abdominal swelling has persisted. There is no history of specific lesion. Lately the bowels have been constipated, but she has never vomited. She has lost flesh lately.

The abdomen was found enormously and evenly distended. Tympanitic, save in left flank. Hard masses could be felt below and to right of umbilicus. Tender only below and to left of ensiform cartilage. Edge of liver not felt.

January 14th, the abdomen was opened giving escape to about six pints of clear serous fluid. The omentum, mesentery and intestines were studded with nodules, one of which was removed and found by Dr. Whitney to be cancerous. The wound was closed and a dry dressing applied.

She felt relieved by the operation, although the fluid rapidly re-accumulated; and, as no operation was deemed feasible, she was discharged on February 1st.

July 1, 1895. Now at St. Elizabeth's Hospital, where she is failing slowly.

Peritonitis, Laparotomy, Death. — E. F. C., thirty-nine, a sail-maker, born in Massachusetts and living in Boston, entered hospital January 4, 1894. His general health had always been good. Alcohol had been taken to excess at times, and he had had gonorrhea. For about a week there had been some pain in the right side but this had been severe for only three days, causing him to give up work first and then take to bed.

There had been no vomiting, no chills. The bowels had moved two days before. Very little urine had been passed for forty-eight hours, and none for twenty-four. At the time of entrance there was general abdominal distention and tympany and tenderness, particularly in the right iliac fossa. There was dulness in the hypogastrium extending about four inches above the pubes. The pulse was 135 and very compressible. The temperature was 102.5°. There was marked leucocytosis. The expression was dull, the color of the skin dusky, the condition of the patient appeared extremely grave.

After consultation, immediate exploration was advised. An incision five inches long was made over McBurney's point. A small amount of serous fluid escaped from the peritoneum. The large and small intestines were much distended and congested in several areas about a foot in length. The appendix was normal. No constricting band was to be seen or felt. The small intestine was incised at its middle, and stripped of its contents from both ends. The bladder was emptied by catheter. A large opening was made in the cecum for an artificial anus. The intestines were thoroughly irrigated with sterile water and replaced, the wound of the small intestine being first closed.

During the operation and after it there was fecal vomiting. The vomiting increased until a black fluid without fecal odor was repeatedly regurgitated. In spite of the most vigorous stimulation the patient failed rapidly, and died about fifteen hours after entrance.

At neither the operation nor autopsy was the cause of the peritonitis found.

Obscure Abdominal Tumor, Laparotomy. — W. S., age thirty, a veterinary surgeon, born in Maine and

living in Boston, entered the hospital on January 7, 1894. His grandfather had died of phthisis. He had been subject to rheumatism for six years, but had otherwise always been well till nine months ago. He had a sharp pain accompanied by an induration in the right iliac fossa at that time, which confined him to bed for six weeks, and which was attributed to appendicitis.

About three months ago he first noticed a tumor about the size of a lemon in the left iliac region, which was tender but not painful. In the last three weeks it had grown rapidly. During the last six months there had been rheumatic pains in the abdominal muscles, worse on the left side. In the last three months there had been four or five attacks of chills. There had been night-sweats, loss of strength and of twenty-five pounds in weight in two months. The tumor filled the left iliac region, extending two inches to the right of the median line, as high as the umbilicus and within two inches of the symphysis. It was very movable, did not fluctuate, could not be felt by rectum, and was somewhat adherent to the skin.

On January 12th a vertical incision, three inches long, was made over the middle of the tumor. The overlying tissues were porky. On cutting through them about three drachms of thick pus was evacuated from a large cavity about an inch below the surface, the walls of which were lined with cheesy tissue which was curetted away. The peritoneum was thoroughly walled off. The cavity was packed with iodoform gauze. The wound granulated well. In two weeks he was up, and discharged relieved, with a small granulating area.

An inoculation of guinea-pigs with the contents of the cavity gave a negative result. A careful search

was made for actinomycosis, but no evidence of that disease could be found, although the great thickness of the abscess wall and the great amount of induration suggested it.

W. S. writes me, under date of August 10, 1895: "There is no enlargement or soreness; and were it not for the scar and the fact that I get tired on that side when I ride much, I should never know that I had been troubled there."

An examination of the cicatrix, August 14th, shows a slight hernial protrusion at one point. It seems, on the whole, probable that the patient's theory, that the present cold abscess was a sequel of his attack of appendicitis nine months before, is the correct one.

RADICAL CURE OF HERNIA.

The method which I have adopted during the last few years is that known as the Bassini method. The object of this operation is to restore the normal anatomical relation of the parts as nearly as possible. An incision four or five inches long uncovers the anterior wall of the canal and the external ring. The anterior wall is slit open and the exposed sac is separated from the cord, ligatured, excised, and the stump dropped back into the peritoneal cavity. If there is a large amount of omentum in the sac, it is usually cut away. The cord is now gently dissected (not stripped) from the canal and held on one side by a soft strand of gauze. The most important feature of the operation is the next step, which consists in uniting the conjoined tendon to the salient and glistening edge of Poupart's ligament. This can be done by silk, chromicized gut or kangaroo-tendon sutures. It is necessary to take from three to six interrupted sutures. The cord is now laid down upon this new floor, and the

edges of the aponeurosis of the external oblique are brought together again over it. I take the liberty of rehearsing the steps of this well-known operation, as I have seen so many imperfect operations performed under its name. I have only seen a small percentage of the cases thus operated upon by me, but have not seen a case yet in which this method was carried out faithfully in which the hernia had returned.

The case of B. O'C. is the last case in which I attempted the Macewen method, the sloughing of the dissected sac being a calamity which seemed likely to repeat itself owing to the extreme thinness of the sac wall in most cases after dissection. In cases of umbilical hernia it is often difficult to bring the edges of the ring together so as to make a vertical scar. In this case the wound can be closed readily and without tension so as to form a transverse cicatrix.

Inguinal Hernia. — B. O'C., age forty-six, entered the hospital February 21, 1894. She was married, but had never had any children. Four years previously she had been operated on by me for a left inguinal hernia of six years' standing, due to a strain in lifting. At that time there was an omental hernia filling the labium, the size of the fist. The sac was folded according to the method of Macewen, and made to plug the inner ring, which easily admitted two finger-tips. The edges of the ring were snugly united and the tissues overlying them stitched together. The entire sac thus folded eventually sloughed away, and the wound healed by granulation. She was discharged with a firm, thick cicatrix.

Two months later the hernia re-appeared. She then wore a truss, but for three years it has failed to hold. Is now half the size of the fist, contains bowel, and is easily reducible. It fills the labium.

On February 23d an incision four inches long was

made over the old scar. The bowel was exposed and replaced. The internal ring admitted four finger-tips. The sac was dissected out, and cut off at its neck, the edges of the peritoneum being inverted and stitched together by a continuous silk suture. The conjoined tendon and Poupart's ligament were then united by several interrupted silk sutures; and then the anterior wall of the canal was stitched together by another row of silk sutures. The skin was then united by silkworm-gut sutures. A dry dressing was applied.

Three weeks after operation she was up, with a light truss and soft pad. The scar was solid, and there was no impulse on coughing. She was discharged well.

This patient was seen by me eighteen months after the operation. There had been no return of the hernia. A light truss was still used.

Ventral Hernia following operation for Appendicitis, Operation, Recovery. — J. C., a man about fifty years of age, had his appendix removed three months ago. During his convalescence from the operation he was afflicted with a persistent cough, and two weeks ago noticed a bulging in the cicatrix. This has grown steadily, nearly doubling in size during the first week.

On November 14th, an incision was made along the scar into the peritoneal cavity. The edges of the aponeurosis of the external oblique were found widely separated. The intestinal adhesions to the wound were freed; the separated and retracted peritoneum, aponeurosis and muscles were dissected out and sutured in layers. Interrupted silk to peritoneum and to fascia, silkworm-gut to the other tissues. Dry, sterile gauze and long strips of adhesive plaster across wound were applied, and a swathe. The patient still suffered from a considerable cough, but the wound healed by first intention and without a symptom.

On November 29th, fifteen days after the operation, he was discharged well. He was seen December 15th, and the wound found to be solid, with no impulse on cough.

July, 1895. Has been in good health. No return of hernia.

Umbilical Hernia, Operation, Recovery. — H. M., age fourteen months, entered November 12, 1894. He has a congenital navel hernia, varying in size from a walnut to a small orange.

November 13th. The umbilicus was excised by an elliptical incision. The fascia and peritoneum were dissected out and the bowel returned to the abdominal cavity. The peritoneum and fasciæ were closed in separate layers by interrupted silk, and the rest of the wound by interrupted silkworm-gut. A dry dressing and straps of adhesive plaster were applied.

On the second day the bowels were moved by enema of suds and glycerine. On the sixth day the sutures were removed. The wound had healed by first intention, and there was no impulse on cough or crying. The adhesive straps were re-applied, and he was discharged well, fifteen days after the operation.

His diet for the first two days was malted milk in hot water. After the second day he was given milk and soft solids, care being exercised.

July, 1895. Scar perfectly solid. No sign of any recurrence.

In three other cases in which answers have been received to my inquiry there has been no return of the hernia at periods varying from six to eighteen months. In one case in which the sac of the hernia being small, it was left untouched, the patient writes that he is more troubled than before, as the opening is smaller and there is more difficulty in returning the hernia. The hernia reappeared a few weeks after the operation.

HYSTERECTOMY.

Fibroids of Uterus and Ovary, Abdominal Hysterectomy, Death. — L. L., a colored girl, single, aged twenty-seven years, entered January 9, 1895. Gave an indefinite history of syphilis, but was never pregnant. Five years ago had prolapsus uteri, and has always suffered from menorrhagia. Two years ago she noticed increasing size of abdomen, and stayed for a while in the Boston City Hospital, but refused operation. All bodily functions have remained apparently undisturbed by the tumor, and she has had no pain. Last winter for a short time she passed blood from her rectum. On examination, the diagnosis of uterine fibroma was made, and operation advised on account of the great size of the tumor.

On January 18th an eight-inch incision was made and the abdominal cavity opened. Considerable fluid was swabbed out of the general cavity. A large fibroma of the right ovary presented, overlaid in all directions by omentum whose veins, arteries and lymphatics were enormously dilated and tortuous. The omentum seemed to enclose the tumor as in a net, and the tumor seemed to be fed principally from the large vessels of the omentum. The tumor (weighing sixteen pounds) was found to be attached to the fundus uteri by a pedicle of about three fingers' breadth. After the omentum vessels had been gathered in a bunch, clamped and tied, the tumor was lifted out of the abdominal cavity, the pedicle clamped and the tumor cut away. The uterus was much enlarged with fibroids in the walls and it was thought best to remove it also. The broad ligaments were tied, cut, and the uterus removed over a rubber tourniquet, leaving peritoneal flaps. The flaps were inverted and sutured with silk. All bleeding points were tied with silk.

The patient stood the operation well, and left the table without any stimulant. In the evening her pulse began to rise, but without other sign of hemorrhage. Stimulants and salt solution were exhibited, but with only temporary effect, and about twelve hours after the operation she died.

Examination showed free clotted blood and salt solution in the abdominal cavity. No bleeding point discoverable, but the hemorrhage probably occurred from some omental vessel.

Fibroids of Uterus, Abdominal Hysterectomy, Recovery. — A washerwoman, fifty-three years old, widow, entered the hospital January 1, 1894. Catamenia began at eighteen, induced by drugs. Sixteen years ago miscarriage at three months. Since then two children. Four years ago was treated in Boston City Hospital for grippe and "inflammation," with bearing-down pains. She then noticed a lump in left iliac region. Considerable menorrhagia and some leucorrhea. Has been treated by electricity. Tumor fills lower abdomen, nodular and slightly movable. Cervix is pushed to right and backwards.

January 19th. Operation in Trendelenburg position. Five-inch median incision below umbilicus. The uterus was of the size of the fetal head at birth, and was studded with multiple tumors. There were no adhesions. Broad ligaments ligatured and clamped and cut away. Peritoneum dissected away from uterus to junction of body and cervix, and a wire ecraseur placed at this level. The uterus was cut away, stump and cervical canal cauterized, and the stump supported by the pins. The abdominal wound was closed with stump in the lower angle. Sterile dressing.

On the eighth day stitches were out. On the twelfth day the stump was cut away and pins removed.

At this time she complained of considerable pain on micturition. Citrate of potash and Poland water were administered; but in spite of all treatment, the urinary symptoms persisted. Thirty-four days after the operation there was considerable abdominal pain, relieved by morphia and high enemata of turpentine. The stump was trimmed every day and dressed with peroxide and corrosive.

On March 12th, fifty-three days after the operation, she was discharged well.

Multilobular Fibro-Myoma of Uterus, Abdominal Hysterectomy, Recovery.— A single woman, colored, cook, thirty-two years of age, entered the medical wards in September, 1893, and was treated for uterine fibroid of three and a half years' duration with localized peritonitis. Since then she has had pain in back and legs. General condition is good. The lower abdomen is filled with a solid, movable tumor. To the left of and above the umbilicus is another smaller tumor. By vagina the tumor seems to fill the entire pelvis and to be very firmly fixed. The cervix, very far anteriorly, is felt as a mere dimple.

Operation in Trendelenburg position. A six-inch median incision from one inch above the umbilicus exposed a uterus the size of a child's head, with four subserous fibroids. Many adhesions were torn away and the broad ligaments tied close to uterus and cut away. A wire ecraseur was placed around the cervix at the internal os, and the uterus was removed. The cervical canal was cauterized; many bleeding points in the torn adhesions were secured; and the abdominal wound was closed about the stump, which was secured with pins.

The patient made a good recovery from ether, but required morphia for pain referred especially to the rectum. On the ninth day the stitches were removed.

On the eleventh day the clamp and stump were taken away without any bleeding. On the thirty-third day she was discharged, well.

July, 1895. Is in California working for a family, and has been there some months. Was perfectly well and able to work before leaving.

Cancer of Uterus, Laparo-vaginal Hysterectomy, Recovery. — A woman, twenty-four years old, married, entered the hospital October 27, 1893. Her mother died of cancer of the uterus. She had an instrumental labor four years ago, the child dying at six weeks. She has never been strong. Catamenia regular, but very painful and very profuse. In last two months excruciating pain over pubes; foul leucorrhea, lately stained with blood. In poor condition. Cervix replaced by cauliflower growth, granular and bleeding easily. Induration in both culs-de-sac. Ovaries normal. Fundus uteri movable. The cervix was thoroughly curetted.

Operation, December 1st. With the patient in the lithotomy position an incision was made about the cervix, and the uterus freed from attachments to half way up the body. The vagina was packed with sterile sponges, and the patient placed in the Trendelenburg position. A five-inch median abdominal incision exposed the intestines, which were walled off with gauze. The broad ligaments were tied off with silk. The peritoneum was separated down to the vagina. The uterine arteries were tied separately and the uterus removed. Although the vagina was found to be infiltrated with the disease, the poor condition of the patient rendered further procedure inadvisable. The peritoneum was sewed over the vagina and the abdominal wound closed without drainage. Stimulants were administered, with heaters, and the foot of the bed was raised.

There was considerable pain after the operation, which persisted until discharge. The pain was in the lower back, and was only partially relieved by drugs. Vaginal douches were employed for a few days. On the eighth day the stitches were removed, and forty-one days after the operation she went to Waverley to gain strength for secondary operation upon vaginal infiltration.

Dr. Whitney reported as follows: "Small, soft, fragmentary masses, which showed masses of epithelial cells infiltrating among the deeper structures of the uterus, with more or less round-cell infiltration."

This patient was examined by me in the winter of 1895. There was then an enormous infiltrating mass in the pelvis, and involving the bladder wall. On July 9th she was heard from still alive. Her emaciation and weakness was extreme at the time I saw her.

In connection with these cases of hysterectomy it seems appropriate to report the following case in which the fibroid was treated by removing the ovaries.

Fibroid of Uterus, Removal of Ovaries, Recovery.—F. C. R. entered January 2, 1895. Age thirty-nine, married sixteen years, and never pregnant. Is generally weak and debilitated. The fibroid was discovered nine years ago. A year later was curetted. Since then menorrhagia with some metrorrhagia. There have been no gushes of blood, although she has fainted at times. The patient is anemic and hysterical.

January 7th. On opening the abdomen an apparently cystic tumor presented, but tap was dry. The tumor was so firmly imbedded in the pelvis that it was thought best not to attempt removal. Each tube was removed close to uterus, with its ovary. Stumps were cauterized. The wound was closed tight in two layers, and a dry dressing with swathe applied.

For the next two or three days the patient suffered great pain, probably ovarian. There was some vomiting, but little distention. On the fifth day her bowels were moved by cathartic. The pain disappeared; and with instructions to report for observation of tumor, she was, on the twenty-fourth day, discharged relieved.

Her physician, Dr. H. B. Palmer of Phillips, Me., makes the following report on July 6, 1895: "She still complains somewhat of soreness of muscles, probably due to muscular rheumatism. The fibroid has perceptibly diminished in size, and she has not menstruated since the operation. As the menorrhagia was the principal symptom which demanded relief, the operation must be regarded as successful."

Perforation of the Uterus by a Uterine Sound, Hysterorhaphy, Recovery. — A. T. T. first entered the hospital in 1892. She was then twenty-three years of age, had been married one year and nine months. After the birth of a child the catamenia had been very irregular, and she had suffered from leucorrhea. She was placed in the medical ward, and local treatment was employed without improvement. She was transferred to the surgical ward February 6, 1892. The examination made at that time showed enlargement and retroflection of the uterus, with chronic endometritis; enlargement of the left tube and prolapse of the left tube and ovary. The parts in the left side of the pelvis were very sensitive. The ovaries were removed March 16, 1892, and were found to be slightly increased in size, containing numerous retention cysts. They were non-adherent. The patient made a good recovery from the operation, but did not appear to be relieved of her symptoms. Pain and leucorrhea, with the usual train of nervous symptoms, continued. An examination in January, 1893, showed the uterus to be atrophied and somewhat retroverted.

In April, 1893, the uterus was thoroughly curetted and the patient discharged shortly after much relieved.

In my service of 1894 the patient reappeared complaining of the old symptoms. An examination was made under ether with reference to a second curetting. During this examination the sound, introduced by a colleague, perforated the uterus, apparently penetrating the cicatrix of the right Fallopian tube. The abdomen was opened immediately, and a rent in the right fundus was found about one-half inch long. This was closed with four interrupted Lembert sutures of silk. An inspection of the uterus showed it to be greatly atrophied. In the right broad ligament no sign of adhesion existed. A careful inspection of the left broad ligament, which had been the seat of so much pain, showed a greatly enlarged and varicose vein, and a band of adhesion between the ligament and the sigmoid flexure. Two ligatures were placed around the vein, and the vessel was divided between them. The adhesion was also divided. The patient recovered without incident from this operation, and for a time seemed improved. A thorough course of local treatment during the following summer failed to arrest the uterine discharge and last winter the patient was still complaining of her old troubles.

Her last report, August 20, 1895, is more favorable. She considers that her operations have given her great relief, but she still suffers from leucorrhea.

Acute Intestinal Obstruction, Constricting Bands Divided, Recovery. — M. G., a strongly built laundress, entered October 22, 1894. Three years ago, when four months pregnant, she sustained a fall, followed by miscarriage and localized peritonitis. Never well since. Complains of anorexia and darting pains in lower abdomen, chiefly on left. Considerable bloating; abdominal distention. Passes much gas, and slightly

constipated. Five days ago she felt a sudden, sharp pain in epigastrium. No vomiting and no chills. Bowels did not move, and have not moved since. Pain became worse. Last evening, vomiting, becoming stercoraceous. Cathartics were freely administered, but were of no avail.

On entrance, patient appears as a well-nourished, very stout woman. Face much flushed. Tongue slightly coated. Shallow, rapid (30) respirations. Vaginal and rectal examinations negative. She has had considerable morphia within the last few days. Much abdominal distention and tympany.

Diagnosis of obstruction, probably by band. Prepared for immediate operation.

Median incision, about five inches long, through very thick and fat abdominal walls, on median line below umbilicus, and this point was selected as nearest to the seat of pain. Clear, serous fluid free in peritoneal cavity. Claret-colored, much-distended small intestines exposed. The hand passed into the abdominal cavity quickly detected constricting bands near the line of incision. The intestines lying over these bands were drawn out of the wound and protected by hot, sterile towels. The upper part of the ileum was found to be bound down and constricted by a narrow fibrous band, which was divided with scissors. Other adhesions broken up by fingers. Very little bleeding. Other constricting bands near uterine fundus were tied and divided. After a careful wiping with sterilized gauze the intestines were returned into the abdomen. There was no evidence of permanent injury to the intestines, and the external wound was closed with interrupted silkworm-gut sutures. A dry sterile dressing was applied, with pad and swathe.

The patient's condition at the end of the operation was very poor. Cyanosis, rapid respiration, and rapid,

weak pulse. Foot of bed raised. Oxygen and cardiac stimulants were used during completion of operation and afterward. An enema (cathartic) was given with no result. There was much distention and cyanosis. Some vomiting. Oxygen all night. On the next day, after continued ingestion of cathartics and enemata, a small amount of feces and considerable gas escaped. Stimulated all through this day. Several large dejections relieved the distention and abdominal pain.

She was stimulated with strychnine for three days, and required the rectal tube occasionally.

On the eighth day the dressing was taken down. There was much redness for the entire length of incision, with fluctuation. Incision gave escape to quite an amount of odorless, dark-brown fluid. Sinus packed with gauze and syringed daily with styrone.

Sinus gradually closed in; and November 28th, bowels being regular, and having had no symptoms she was discharged, well.

July 5, 1895. "Bloats much." Fairly well, except for two attacks about two months ago of constipation and vomiting.

The constricting bands in this case appear to have originated from the localized peritonitis which occurred at the time of her miscarriage.

Cancer of Rectum, Chronic Intestinal Obstruction, Littrê's Operation, Recovery. — E. T., aged forty-six, entered January 24, 1895. One sister died of phthisis, but otherwise the family history is negative. Five years ago her uterus was curetted for menorrhagia, with resulting relief for two years. Three years ago a vaginal hysterectomy was done, the symptoms having recurred. Then she felt well, and gained until last April (1894), when she had pain in course of left sciatic nerve and along inner aspect of left thigh, the latter being relieved by defecation. There has been a

tendency to constipation and gas formation; but by careful dieting and other expedients there has never been complete stoppage until during the past seven days — there having been no movement in that time. In this time she has vomited twice. The appetite is very poor. She has lost twenty to thirty pounds in weight in a year, and the left leg is especially atrophied.

She presented the characteristic cachectic appearance. The abdomen was much distended, and by rectum a gristly stricture reaching beyond the length of the finger was found.

On January 26th a five-inch incision was made in the left iliac fossa, and a knuckle of large intestine withdrawn. A bridge of skin was taken from the inner edge of the wound, passed through the mesentery under the bowel and sutured to the other edge of the wound. This was reinforced by gauze fastened by stitches. The bowel wall was stitched to the adjacent skin and protected by a dry dressing.

On the following day the loop of bowel was opened transversely, giving vent to large quantities of feces and gas.

Great relief was experienced from the operation. The movements were controlled by a gauze pad, and the wound was easily kept clean. Occasionally the distal end of the bowel was syringed with an antiseptic.

On February 14th she was discharged, much relieved.

The method employed in this case, suggested by Dr. S. J. Mixter, substitutes a flap of skin for the glass rod which is placed under the protruding loop of bowel. The object of this plan is to make a spur which will prevent all fecal discharge from passing down below the artificial anus. When the bowel has been cut

across and has healed to the skin, there remain two distinct openings — one leading to the descending colon, the other to the rectum.

Patient reports, July 29, 1895, that there has been no symptoms of obstruction since the operation. The growth now involves the vagina and bladder. The patient takes about half a grain of morphine and thirty-five grains of phenacetine daily.

Chronic Intestinal Obstruction, Left Inguinal Colotomy, Death.— A man, sixty years old entered the medical ward December 19, 1893. Two years ago he had "dysentery," and since then has never been very well. Suffers from dyspepsia. These symptoms have been worse for the past month. Passage of feces always relieved the pain. Seventeen days ago he experienced a severe recrudescence of his symptoms, with vomiting and obstipation. Since then his bowels have moved only by enema. During the next week he did not improve, and was transferred to the surgical side. At that time he was much emaciated and very weak. The abdomen was so distended by gas that palpitation was unsatisfactory. He was fed by nutrient enemata, and prepared for operation for supposed ileo-cecal stricture.

A four-inch incision was made in the ileo-cecal region over the course of the ascending colon. The cecum was distended but normal. The hand detected a tight stricture of the sigmoid. The wound was closed and an incision made in the left iliac region, and the tightly constricted sigmoid flexure exposed. Owing to the poor condition of the patient, a resection was deemed inadvisable; therefore the bowel was sutured into the wound and the patient put to bed. Under the influence of stimulant enemata he made a good recovery from ether, and on the next day the intestinal wall was incised under cocaine, with

immediate discharge of gas and feces. An oil enema was given through the opening, and a large amount of fecal matter evacuated. A dry dressing was applied to the wound and the patient stimulated.

During the morning the patient failed steadily, and at 12.15 P. M., twenty-four hours after the operation, he died.

Patients suffering from advanced intestinal cancer with prolonged chronic obstruction are poor subjects for surgical interference. I would advise in a case of this kind an incision through the abdominal wall with cocaine anesthesia — the bowel to be opened the following day. In this way not only is ether avoided, but all the attendant manipulations of an abdominal section. The method can be carried out easily as the abdominal walls are tense and thin.

Renal Calculus, Nephrolithotomy. — W. T. C., aged twenty-eight, a teamster, born in England and living in Cambridgeport, entered the hospital October 26, 1893.

When a year and ten months old he fell down stairs and had ever since suffered from pain in the right side. Eighteen years ago he had an attack of severe sharp pain in region of right kidney, shooting down into the testicle. He finally passed a stone about the size of a dried pea. Four years ago another stone was passed after a similar attack. For eighteen years there have been attacks of pain in the right side about every week. During the more severe of these there were chills and vomiting. Eleven days before entrance he had the last attack, of about twenty minutes' duration. But there has been a constant pain in the side ever since. He urinated every hour, there being no difficulty in urination but pain in the right groin preceding it. [The report on the condition of the urine is unfortunately lost from the hospital records.]

The examination of the abdomen was negative, except for tenderness over the region of the right kidney on deep pressure. Search for vesical calculus was without result. The patient was otherwise perfectly well but was totally disabled from work.

November 17th. An incision was made, five inches long, from the lower border of the ribs to the iliac crest, exposing the capsule of the kidney. Numerous adhesions were broken up, and four silk sutures were placed through the capsule and substance of the kidney by which it might be held in the wound, the hand being introduced into the wound so as to grasp the kidney. A calculus in the pelvis could be distinctly felt. A longitudinal incision was then made directly through the convex border of the kidney and through its substance into the pelvis, the knife being thrust through the organ until the point grated upon the stone. The bleeding which followed the withdrawal of the knife was most copious, but could be readily controlled by the finger introduced through the wound in the kidney. The stone, which was adherent, was held by the point of the fingers and was then removed with forceps. It was about as large as a peanut (as shown in the cut), and was composed of urates. The wound in the kidney was then packed with gauze, and the kidney was stitched into the base of the wound. The peritoneum was not opened. A gauze drain was placed in the lower angle of the wound and a sterile dressing applied. This required frequent changing because of the free staining with urine. The wound was irrigated with styrone solution. For five days the diet was limited to milk together with diuretics. On the

fifth day the packing in the wound in the kidney was loosened, and two days later was removed. After ten days the urine passed from the bladder was free from blood. After two weeks urine ceased to come from the wound. During the day at the end of this time the patient had considerable pain in the right groin, which toward evening ceased. Later in the evening, after micturition, he noticed a long thread of gauze protruding from the meatus, which he withdrew. It had evidently passed down the ureter, becoming detached from the packing in the kidney.

December 22d. Five weeks after operation the wound had healed excepting a small granulating spot, and the urine was normal. He was discharged well.

The patient has been perfectly well since the operation; his attacks of renal colic have entirely ceased, and he has been actively at work since his convalescence.

It should be stated here that this case is one of nephrotomy on the otherwise healthy kidney, and not a case of incision of a pus sac containing a calculus. The two operations cannot be classed together.

PYOSALPINX.

This is one of the most common of abdominal affections now operated upon at the hospital. The operations are, as a rule, difficult and tedious; but the patients do well, and eventually recover a satisfactory condition of health. Tubercular peritonitis is a not infrequent accompaniment of this affection, and gonorrhea a not infrequent cause. An important detail in the technique of the operation is the careful walling off of the diseased tubes from the general peritoneal cavity. It is also an excellent plan to aspirate the tubes with the most scrupulous care before attempting their removal. The chances of spilling pus into the

peritoneal cavity are thereby greatly diminished. The Trendelenburg position greatly facilitates these manipulations. The old pus in these tubes is, however, often of a mild, unirritating character; an entirely different substance, from a clinical point of view, from that found in an appendicular abscess. Cultures taken from these tubal abscesses have not infrequently proved to be sterile. There were eleven cases of this disease, and in one only was there a fatal result. In this case the condition of the patient was such that the operation was performed, chiefly as a last resort.

Double Pyosalpinx, Laparotomy. — A domestic, single, thirty years old, entered February 9, 1894. Always well, except for constipation, for last three years, until January 1st, when she had an attack of general, lancinating, abdominal pain lasting one day, and relieved by hot poultice. Vomited once. Then well until a week ago, when she had a chill which subsided without other symptoms. On the morning of entrance she had an attack of abdominal pain, situated first at the umbilicus, but soon becoming general and accompanied by vomiting. Bowels moved within twenty-four hours. No chill.

On physical examination her general nourishment was good. The abdomen was slightly distended, with tenderness most marked in the right iliac fossa. Dull in left iliac fossa, tympanitic elsewhere. Vaginal examination was negative. Rectal examination showed tight stricture. She was given liquids without milk, and morphine. Hot applications to abdomen. In consultation the diagnosis of probable intestinal obstruction was made, and immediate operation urged.

February 10th, Littré's incision was made, four inches long. A large amount of foul-smelling, turbid serum escaped from the peritoneal cavity, but no

obstruction was found. The incision was then closed, and a five-inch median incision made. More of the foul serum escaped from the general cavity. The right tube was found much enlarged, its fimbriated extremity being branched and reddened like mucous membrane. Attached to the posterior uterine wall was a cyst the size of a lemon, which ruptured, allowing the escape of a cheesy, puriform material. The cyst was tied and removed, as was also the right tube. The left tube, which was enlarged, was left. Both wounds were closed about glass drainage-tubes after irrigating the abdominal cavity with sterile water. Sterile dressing and swathe applied. Although the patient was in very poor condition, she rapidly recovered from the anesthetic.

The tubes were sucked out twice a day, the discharge being very foul. Her condition continued poor, and on the seventh day a stitch abscess was found in the median wound. On the next day pus was found burrowing in the abdominal wall. Tubes were inserted. On the whole the wounds granulated well, although the patient gained strength very slowly.

On April 20th she was sent to the Convalescent Home, and left there May 8th.

June, 1895. In perfect health. Active and at work. No cough. Has gained much in flesh and strength.

Pelvic Abscess, probably of Tubal Origin; Laparotomy, Recovery.—Mrs. L. P. K., forty-seven years of age, entered November 5, 1894. Had suffered pain on the right side for twenty years, which had been treated for liver complaint. For the last year patient has had pain at time of defecation and the movements had the appearance of being mixed with pus. Thought at one time that something broke in the rectum. Suffers from bearing-down pain, and has pain

when in sitting posture. Although fairly stout, has already lost considerable weight. An examination shows some distention of the abdomen, but no dulness. By vaginal examination a hard mass is felt in front of the rectum. The rectum is somewhat constricted by this mass, and at the time of entrance the possibility of a stricture of the rectum had been suggested.

On November 9th an examination was made under ether, and the finger was passed into the mass through a small opening which was found some distance from the anus. This opening was dilated, and about three ounces of pus evacuated. After thorough syringing with sulpho-napthol (1–500), a T-shaped rubber drainage-tube was inserted. Her condition after the operation remained much the same. The temperature ranged somewhat higher and varied greatly; the patient began to lose flesh rapidly and became weaker daily.

On November 28th a median abdominal incision was made. The abdominal cavity, when opened, was found to contain a considerable amount of bloody serum, and the pelvis, particularly that part behind the uterus, was found to be filled with adhesions. With some difficulty these were separated, and the finger finally reached a small pus cavity between the uterus and the rectum. The finger could be passed down through this, and be made to communicate with a finger of the other hand inserted into the rectum. No attempt was made to free the uterine appendages, as the operation was performed principally for the purpose of effecting a through and through drainage. The cavity having been thoroughly disinfected, was packed with iodoform and sterilized gauze, and the external wound was partially closed. From this time on the patient continued to improve slowly. The

sinus that remained after the stitches were removed occasionally discharged fecal matter. It was systematically washed out from the beginning, so that fluid flowed freely through the dilated sphincter at each washing. Her emaciation was extreme, and the temperature frequently rose, although the tendency was towards the normal line.

She left the hospital March 9th, with directions as to the washing of the sinus. She reported July 2, 1895, that her general health was good. There still exists a sinus the size of the lead of a pencil. There is a slight, white discharge from the rectum.

This case is reported as a good example of what may be accomplished after a long and tedious struggle with unfavorable conditions.

Double Purulent Salpingitis and Oöphoritis, Salpingo-Oöphorectomy Recovery. — Entered December 21, 1894. Age twenty-four, married for four years. One child and two miscarriages (at four months and seven months). Menstruation normal. Has leucorrhea, and pain in left iliac fossa. No specific history. Thirteen weeks ago there passed from the vagina a whitish mass appearing like an egg with no shell. She appeared in good condition and well nourished. There is considerably muco-purulent discharge; to the left of and behind the uterus can be felt a mass moving with the uterus. She was put on hot antiseptic douches; but the mass increased in size, pushing down the uterus. There was no fever and no leucocytosis; but on account of the non-improvement in local symptoms, an operation was advised.

January 4, 1895, a four-inch median incision opened the abdomen. A cyst of the left tube was tapped, and seven ounces of pus evacuated. After tearing adhesions the tube was removed close to the uterus, and the stump cauterized. The right tube was treated in

the same manner, and the abdominal wound partially closed with three iodoform gauze wicks deep into pelvis. Three days later the wicks were withdrawn, and on the next day the bowels were moved. The wound closed for the most part by first intention. There was some sloughing of the fat at the site of the wicks. This was dressed with myrrh wash, and gradually closed in.

The patient made an excellent convalescence, and was discharged well.

July 3, 1895. "Never felt better than at present." No pain, no tenderness, no hernia.

Chronic Purulent Salpingitis, Salpingotomy, Recovery. — Entered December 1, 1894. Twenty-four years old. She has been married eight years; and although she has never tried to prevent conception, she has never been pregnant. Catamenia not profuse nor very bloody. For four weeks has had a constantly increasing pain in the lower abdomen without distention. Last catamenia six weeks ago. Bowels constipated. Appetite poor. Temperature 101.8°, pulse 120, respiration 32. She was a poorly nourished woman, with prominent eyes and a dry, coated tongue. General tenderness in lower abdomen, with distention and tympanitic dulness over pubes. Behind a long, soft cervix uteri could be felt a soft boggy mass, tender and seemingly fluctuating.

She was fed up as well as frequent vomiting would allow, and was operated upon on December 3d. On entering the abdominal cavity a large cyst, the size of grape-fruit, was encountered. This was punctured and ten ounces of pus sucked out, the peritoneal cavity being walled off with gauze. The cyst was found to be of the left tube, which was dilated, full of pus and tied down by adhesions. These were tied and severed, and the tube was ligatured and removed close

to the uterus. Iodoform gauze wick and some gauze packing were left in the wound, which was partially closed by three sutures.

The patient made an excellent recovery from ether and from the operation. The bowels were moved by enema on the second day, and on the third day adhesions had isolated the wound, which granulated well, being stimulated occasionally.

January 15, 1895. An abdominal supporter was fitted, and she was discharged, much relieved.

July 13, 1895. "Feeling first-rate" at present. After leaving had a cold, and with cough scar bulged, but now solid. No pain.

Double Pyosalpinx, Laparotomy, Death. — Thirty years old and married. Only one child. Entered October 22, 1894. Catamenia always regular and normal. Five weeks ago, pain in region of both ovaries—paroxysmal and requiring morphia. Has had chills and vomiting. Appetite poor. Bowels regular. At the time of entrance the appearance of the patient was very unfavorable. She was anemic and pasty-looking. A systolic murmer at apex not transmitted. Her pulse was feeble and rapid. After entrance had chills, fainting, vomiting, anorexia. Given digitalis. It was evident that she had delayed surgical interference until her chances of success had been greatly diminished. An attempt was made to build up her strength by rest and good nursing; but her condition not improving, it was decided to make an attempt to remove the tubes.

On October 31st a median incision was made. Large, firm masses were found in both iliac regions. Intestines were adherent on left side. Adhesions separated, and distended tubes lifted out of abdomen, both bursting and liberating much pus. On account of the poor condition of the patient the operation was

hurriedly completed by swabbing out the pelvic cavity, packing with iodoform gauze and suturing the upper portion of the wound. She was stimulated with strychnine (one-twentieth of a grain subcutaneously), and given an enema of brandy and salt solution. The foot of the bed was elevated, and stimulants freely administered. Towards evening her pulse became poor, but was strengthened by stimulation. A weak, rapid pulse and extreme restlessness with pallor pointing to hemorrhage, the wound was opened in the morning, but nothing found. Delirium alternating with drowsiness ensued, with vomiting and weaker pulse. No distention, no tenderness.

At 11 A. M. November 1st, she died. At the autopsy no evidence of peritonitis was found.

Pyosalpinx, Tubercular Peritonitis, Laparotomy, Recovery. — This girl, twenty years of age and unmarried, entered January 16, 1894, in a very weak and debilitated condition. Her symptoms she dates from last May, when she had a sharp pain in the lower abdomen during the first day of menstruation. This pain returned with succeeding periods until October, since which time she has not flowed. Her first catamenia was at fifteen; then to sea-bathing she ascribes amenorrhea for three months. Since then she has been fairly regular. Ten weeks ago very severe pain in hips and back, not at menstrual time. The pain was ushered in with a chill and vomiting. The chills recurred, and she has been in bed for seven weeks.

On physical examination nothing but tenderness could be made out to right of uterus. As the temperature continued high, it was decided to operate.

January 26th, in the Trendelenburg position, a four-inch median incision below the umbilicus showed the omentum and intestines to be adherent to the abdominal parietes. The intestines were glued together and

covered with minute tubercles, a small amount of hemorrhagic fluid escaped. A localized abscess cavity was found in the right pelvis. In this cavity was the thickened and tortuous right Fallopian tube, which was tied close to the uterus and removed. The cavity was then sponged and packed with iodoform gauze, and the external wound was dressed with aseptic gauze.

There was considerable shock after the operation. For several days there was a very free purulent and fecal discharge. The wound was treated with irrigations of corrosive sublimate (1 to 10,000), and later with sulpho-napthol and styrone. Recovery was rather slow, and on March 12th she was sent to the Convalescent Home to recuperate her strength. The sinuses were still discharging, but there was marked improvement in her general condition.

Patient gained in health and strength until the autumn of 1894. After that she failed slowly, and died January 23, 1895.

OÖPHORECTOMY.

There were in all seven cases of oöphorectomy, with no deaths. One was for fibroid tumor of the uterus, already reported. One was for neurasthenia and dysmenorrhea; in this case the report, eight months later was, "Health still poor." In another case a small ventral hernia was reported eight months later. Three cases are selected for this report, as having special points of interest.

Dermoid Tumor of Ovary, Laparotomy, Recovery. — E. H., married, aged fifty-seven years, entered the hospital December 17, 1893. In May, 1893, she experienced a sharp pain in the lower abdomen just above the symphysis, with a frequent desire to micturate. This lasted a few hours. In June she had another attack, which to a certain extent has persisted.

Climacteric eight years ago. Constipated. She is well developed and nourished. To the left of the uterus is a tumor the size of orange. Not tender.

Operation in Trendelenburg position. A four-inch median abdominal incision disclosed a tumor of the left ovary, connected to the uterus by a small pedicle which included the tube. With the trocar about six ounces of thick gelatinous matter was evacuated, and the tumor was removed. Abdominal wound closed.

Uneventful recovery. One month from operation she was discharged well.

On opening the cyst after removal, it was found to contain hair, a tooth and adipose tissue — a true teratoma. A portrait of this tumor may be seen on page 750 of my "Surgical Pathology."

Extra-Uterine Pregnancy (?), *Ovarian Cyst*, *Laparotomy*, *Appendectomy*, *Recovery*. — The patient, a married woman of forty-three years, entered the hospital December 27, 1893. For six years she has had a dragging-down sensation — uterine. For two years "nervous prostration." Six years ago she bore a child, and one year ago she miscarried at three months. Three months ago she considered herself one month pregnant, although catamenia had appeared. She had a sudden severe pain above and to right of umbilicus. Has lost flesh and strength. Feels better when standing. Appetite good. By vagina a cyst can be felt in posterior cul-de-sac.

Operation was performed January 5, 1894, in the Trendelenburg position. A five-inch median incision was made. A cyst, the size of a lemon, occupied the position of the left ovary, and the left Fallopian tube was dilated to the size of a walnut. From this dilated part, which was about an inch from the uterus, escaped what was apparently a large clot. No fetal structures were observed. The tube and cyst were removed

close to the uterus. The uterus contained three or four small mural fibroids which were not disturbed. The appendix vermiformis was accidentally exposed during the operation, and was found to contain several concretions, and was ligatured and removed. The abdominal wound was closed.

On the eighth day the stitches were removed. The patient made an absolutely uneventful recovery, and was discharged on the twenty-sixth day.

August 6, 1895. Patient reports herself in good health. The catamenia have been regular as "clockwork" since the operation. There is no hernia.

Retention Cyst of Ovary, Ovariotomy and Ventral Fixation, Recovery. — Single, twenty years old. Entered February 9, 1894. When nine years old sustained injury to lower spine from fall, necessitating cushioned seat ever since. Suffers from backache, etc. Catamenia began at thirteen, never regular. Three years ago again fell; symptoms aggravated. Douching and packing for six months without relief. Two years ago pain in epigastrium; dull at first, then sharp, accompanied by nausea and vomiting; chill, with temperature 104°. In bed two weeks. Trouble with micturition; bearing-down pains, not at menstrual period. Several attacks of epigastric pain, becoming abdominal and lasting two days. Four weeks ago an attack was followed by severe rectal pain. Said to have had *la grippe*. One week later passed pus by rectum. At that time "bunch" felt in rectum, and thinks fistula (recto-vaginal) existed. Invalid for years.

Physical examination showed the uterus sharply retroflexed and bound by adhesions. There was some tenderness in the right posterior cul-de-sac with a small indistinct convoluted mass.

February 21st, in Trendelenburg position, the abdominal cavity was opened by a five-inch median inci-

sion. The adhesions of the uterus were freed, and the right tube and ovary, enlarged, cystic, and with a hematoma in the ovary, were ligatured with silk, and removed one inch from the uterus. The uterus was then sutured to the anterior abdominal wall with buried silkworm-gut and the external wound closed with the same material. A dry sterile dressing and swathe were applied.

After the operation, for a day or two there was considerable pain and some vomiting, requiring nutrient enemata. The wound healed by first intention, and she made a good convalescence, being discharged on the twenty-fourth day.

July, 1895. Has had some attacks of pain since discharge. Now gaining and doing well. Gain not so marked or rapid as hoped for. No examination of uterus has been made.

SUPRAPUBIC CYSTOTOMY.

Suprapubic Cystotomy for Cystitis.— J. J. K., aged forty, born in Cape Breton and living in Wakefield, entered the hospital December 16, 1893. Seven months before he had been divulsed for strictures. At that time no stone was found. Sounds have been passed since about twice a week. About a fortnight after leaving the hospital he began to pass blood, which has increased steadily in amount. There has been also an increasing dull, steady pain in the bladder. Micturition has been very frequent. For five weeks gravel has been passed.

Examination showed considerable pallor. There were four strictures of the penile urethra admitting a No. 20 F. bougie, and one of the membranous through which a searcher could easily be passed. No stone was found, but a roughness was felt on the left side of the neck of the bladder. An examination of the urine,

December 19th, showed the presence of blood, triple-phosphates and urate of ammonia and cells from neck of bladder. No cells indicative of morbid growth, alkaline, 1.029.

January 3, 1894. Blood has been passed constantly, and with great tenesmus. A cystoscopic examination was made, and a mass on the left side near the neck of the bladder was seen projecting from the bladder wall, and covered with a white phosphatic deposit. There were shreds hanging from this mass, and from the bladder wall, which was everywhere hyperemic.

January 8, 1894. With the patient in the Trendelenburg posture the bladder was filled with warm water and the rectum was distended with a colpeurynter. A vertical cut, three inches long, was then made into the prevesical space. The bladder was exposed, seized with tenacula, and opened by a cut an inch and a half long. No new growth was found, but the bladder was seen to be covered with phosphatic crystals and the projecting mass seen with the aid of the cystoscope proved to be a fold of the bladder wall. The bladder was drained with two rubber tubes and gauze, inserted through the wound.

No infiltration occurred. The wound had closed by March 17th, about nine weeks after operation, and micturition was normal in every way. He was discharged well, April, 1895.

SARCOMA OF ABDOMINAL WALL.

Fibro-Sarcoma of Abdominal Wall, Excision, Recovery.— E. M., aged thirty-three, married, born in Ireland and living in Cambridge, entered the hospital January 4, 1894. Her family and previous history negative. A year and four months before, she noticed a lump about the size of a hen's egg in the right side, neither painful nor tender. This has gradually in-

creased in size till it now causes much inconvenience in moving and in adjusting clothes. There has been no loss of flesh or strength.

Examination showed the woman well developed and nourished. Presents in right iliac fossa a rounded, not nodulated, dull tumor, the size of a child's head. The skin not adherent. No redness. The tumor was movable except when fixed by flexion of the thigh.

January 10th. By an elliptical incision, seven inches long, at the under and outer margin of the tumor, it was shelled out from its attachments by blunt dissection. It sprang apparently from the fascia of the internal oblique muscle. The peritoneum was not opened. The different muscular layers were united with interrupted silk sutures, and the skin with silkworm-gut.

January 31st. Has healed by first intention. Discharged well.

Tumor pronounced by Dr. Whitney to be fibro-sarcoma.

August 15, 1895. Patient reports that there is no return of the disease nor any appearance of hernia, and that she is quite well.

VENTRAL FIXATION.

Procidentia Uteri, Ventral Fixation, Recovery. — A widow, forty-five years old, entered November 3, 1894. Three months ago, while working, sustained a sudden prolapse of uterus, which she tried ineffectually to reduce. Nothing has been done for it, and on entrance the entire uterus was found protruding. It was enlarged, and there was a foul odor and considerable discharge flowing from many excoriations. The cervix was torn, and there were friction abrasions about vaginal wall and vulva, and a small abscess in the perineal body from which pus flowed. The prolapse was reduced without ether, and the patient was put to bed.

After a prolonged local treatment, employed for the purpose of diminishing the size of the uterus and relieving an endometritis, on November 30th, having gained strength, the uterus was thoroughly curetted and packed with iodoform gauze. The organ, which was retroverted and retroflexed, was propped up by gauze in the posterior cul-de-sac.

On December 6th she was etherized, and the abdominal cavity opened. The uterus was drawn up from the pelvis and fastened by three silk sutures to the anterior abdominal wall. The wound healed by first intention, and the patient made an uneventful recovery.

On January 3, 1895, with the uterus in excellent position in all postures, a supporter was fitted, and she was discharged well, twenty-eight days after the operation.

August 29, 1895. Uterus remains in place. The patient can feel a slight sagging when working very hard. It has never appeared at the vulva since the operation. Feels better than she has for a long time, and is able to do a hard day's work.

Retroversion of Uterus, Ventral Fixation, Recovery.—A. E., age twenty, single, entered December 14, 1895. Two years ago she began to masturbate, and four or five days after the first attempt she had her first epileptic attack. She was observed in the hospital, and had one attack before operation. The uterus was found retroverted and freely movable, at other times anteverted. It was curetted, and the posterior cul-de-sac packed. Pessary caused too much discomfort, and packing did not relieve. Had other attacks which Dr. Walton considered true epilepsy and advised removal of possible reflex causes. It was therefore decided to perform ventral fixation to prevent the great freedom of displacement of the uterus.

On January 9, 1895, the abdomen was opened by a median incision, and the uterus sutured to the parietes by three silk stitches. The wound was closed in layers, and a dry sterile dressing applied.

Had an attack after the operation. Later had much pain in left iliac region, running into thigh, with tenesmus and symptoms of pressure upon rectum. Vaginal examination reveals a firm, regular, tender mass in the posterior cul-de-sac. Uterus in place; no leucocytosis; probably a hematoma. The wound had closed by first intention. Flaxseed poultices and hot vaginal douches were given with relief.

After this she made a good recovery; and February 16, 1895, five weeks after the operation, she left the hospital greatly relieved.

August 29, 1895. No relief to epilepsy. Habits and mental condition not improved. Considerable leucorrhea. Uterus in good position.

The following is a list of the cases treated:

	Cases.	Recov.	Deaths.
Appendicitis, acute	15	13	2
Appendicitis, recurrent	3	3	..
Cholecystotomy	2	1	1
Cystotomy, suprapubic	1	1	..
Exploratory laparotomy	6	5	1
Radical cure of hernia	10	10	..
Hysterectomy	4	3	1
Hysteroraphy	1	1	..
Intestinal obstruction	3	2	1
Nephrolithotomy	1	1	..
Oöphorectomy	7	7	..
Salpingitis, purulent	11	10	1
Sarcoma of abdominal wall	1	1	..
Ventral fixation	2	2	..
	67	60	7

Total mortality, 10.4 per cent.

In analyzing the causes of death, we find in the case of appendicitis one death due to delay in the operation. In the case of cholydochotomy the necrosis

of liver was due possibly to injury during the process of manipulation of the duct. It is not rare for a case to fail and die with persistent vomiting, after operation on the gall bladder, without assignable cause. In the present case the sepsis found about the duct was probably merely an accompaniment of the final hours of a fatal illness. The absence of all sepsis until the last moment is suggestive of this sequence of events. The death following an exploratory laparotomy was in no way due to the operation, which was resorted to as the only hope for a desperate case. In the fatal case of hysterectomy death was due to hemorrhage; clearly a preventable cause. The case of death following a Littré operation was that of a patient exhausted by malignant disease and a chronic obstruction. The operation probably hastened death but a day or two. The death from salpingitis was one which could hardly be attributable to the operation, as that was not resorted to until all other means had failed to restore the strength of the patient to the living point. Leaving out these cases in which the operation does not appear to have contributed to the fatal result, there remain but three cases in which death may have been said to be due to the treatment.

Note. — F. C. R., whose ovaries were removed on January 2, 1895, for the cure of a fibroid tumor completely filling the pelvis, was examined by me on December 12, 1895, and it was found that the tumor had entirely disappeared. The uterus was movable and of normal size (see page 26).

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